U.S. EPA's Regulatory Framework for Inadvertently Generated PCBs under the Toxic Substances Control Act

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PCBs in Pigments: Challenges for Effective Source Control

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Peter Gimlin

Environmental Protection Specialist

National Program Chemicals Division

Topics:

- TSCA Regulatory Overview
- Excluded Manufacturing Processes: Conditions & Notices
- PCB Use Reassessment Process: Advanced Notice of Proposed Rulemaking and Comments

PCB Background

- PCBs produced commercially in U.S. from 1929 to 1970s
- Primary use was in electrical equipment, but were used in or contaminated myriad other applications
  - Pre-1971 NRC Corp. carbonless copy paper
- Est. 1.4 billion pounds PCBs produced in U.S. from 1929-1970s
  - 750 million pounds remaining in use in 1970s
  - 180 million pounds estimated released into environment pre-TSCA

Toxic Substances Control Act (TSCA) Section 6(e)

- PCB-specific amendment to the 1976 Act
- Controls all aspects of the PCB life-cycle:
  - Manufacturing (import)
  - Processing
  - Distribution-in-commerce (export)
  - Use
  - Marking
  - Disposal
- Implementing regulations at 40 CFR Part 761
  - Over 100 pages of final regulations
- Numerous rules promulgated since 1978
  - Last major revisions in 1998

TSCA PCB Regulations: 40 CFR Part 761

- Bans manufacturing and processing, unless exempted by rule
  - Standing exemptions for R&D and scientific uses
  - Petition process available (but very cumbersome)
- Bans distribution, except for totally enclosed or authorized PCBs
  - Intact, non-leaking electrical equipment (considered totally enclosed)
  - PCB waste for disposal
- Bans use/storage, unless authorized by rule
  - Certain electrical equipment and other uses ≥ 50 ppm (e.g., carbonless copy paper; research and development; natural gas pipelines; porous surfaces contaminated by spills; decontaminated materials)
- Disposal – Regulates disposal of PCBs ≥ 50 ppm
  - Remediation (cleanup) wastes may be subject < 50 ppm
- Certain broad exclusions for < 50 ppm PCBs

Regulatory Exclusions for <50 ppm PCBs

- General exclusions of some <50 ppm PCBs (761.20); promulgated via rulemaking (at least 5 rules), each with public notice-and-comment opportunity:
  - *excluded manufacturing processes (EMP):* ongoing inadvertent generation
  - *excluded PCB products (EPP):* historical (pre 10/1/84) contamination
  - *recycled PCBs:* paper and asphalt roofing shingles only
- Manufacturing/import: *EMPs*
- Processing and distribution in commerce: *products of EMPs, EPPs* and recycled PCBs.
- Use: *products of EMPs, EPPs,* recycled PCBs, and sewage sludge

Excluded Manufacturing Process Rule

- 1984 Final Rule (July 10, 1984: 49 FR 28172)
  - Result of EDF court case/consensus proposal
- 200 chemical processes reviewed
  - 70 high probability of producing PCBs
  - Chlorinated pigments/dyes included
- Pigment & dye, paint, paper and printing companies participated
- 100,000 lbs./year inadvertent generation of PCBs, of which:
  - 11,000 in products (including chemical intermediates)
  - 1000 lbs./year released to the environment
  - [Versus 180 million lbs. released to environment pre-TSCA]

EMP Conditions

- Inadvertently generated PCBs
- Annual average <25 ppm; 50 ppm maximum concentration
  - Lower limit of 5 ppm set for detergent bars
  - Disounting factor for monochlorinated (50x) and dichlorinated biphenyls (5x)
- Controls on manufacturing waste/releases
  - Air emissions less than 10 ppm
  - Water discharges less than 100 micrograms per liter
  - Disposal of any process wastes ≥ 50 ppm regulated as PCB waste
- Reporting and Recordkeeping Requirements

EMP Notices

- Notify EPA if manufacturing/importing products with > 2 ppm PCB concentration (in any resolvable gas chromatographic peak)
  - Approximately 80 notices from 28 companies on file
  - Records only since 1994: maintained in EPA docket
- Must file within 90 days, including basic information (number, type, location of processes) and certification
  - Information may be claimed as proprietary (CBI)
  - Supporting records must be maintained for 3 years
- Notice also required if air/water releases exceed 10 lbs./year

EPA's Reassessment of PCB Use Authorizations

- Millions of pounds of contaminated liquid estimated to remain in authorized use in equipment (primarily electrical)
  - Including at very high concentrations (e.g., 500,000 ppm or greater)
  - Are well known to include "dioxin-like" congeners
  - Age (30+ years) and condition of this equipment a concern
  - Decreasing economic importance a factor
- Emerging issues with non-liquid PCBs (e.g., caulk and paint) in use
  - Also at very high concentrations (e.g., caulk up to 30% PCBs = 300,000 ppm)
  - Are well known to include "dioxin-like" congeners

2010 Advance Notice of Proposed Rulemaking: Reassessment of PCB Use Authorizations

EPA solicited comments and data needed to characterize/understand ongoing sources and releases of PCBs:

- Liquid PCBs in equipment and pipelines
- Elimination of most use authorizations at levels ≥ 50 ppm
- Non-liquid PCBs (including caulk)
- Porous surfaces with PCBs
- Definitional and marking issues
- **Use of 50 ppm level for excluded products/processes**
- **Lowering the Level of Quantitation (LOQ) from 2 to 1 ppm**

Comments on the ANPR

- 242 comments in docket; about 148 individual commenters
- Major groups of commenters
  - Electrical utilities (industry)
  - Natural gas transmitters and distributors (e.g., INGAA, AGA)
  - Parents and workers in New York City schools (caulk)
  - Metal/plastic recyclers (e.g., ISRI, MBA Polymers)
  - **Governments (DOE, Mass. DEP, Wash. DEP, Tribes, local)**
  - **Recycled paper producers (Inland Paper)**
  - **Pigment manufacturers (Color & Pigment Manufacturers Ass'n)**

Excluded Manufacturing Process/Products: Comments

- Washington State Department of Ecology
  - Significant amounts of PCBs flow into Puget Sound; primary source is runoff; " . . . do not have estimate for which sources of PCBs are contributing most to loading"
  - Does not "recommend that the EPA authorize the use of caulk, paint, or other non-liquid PCB product at concentrations exceeding the level of 50 ppm currently provided . . . for excluded PCB products"
- California Regional Water Quality Board
  - "In development of this TMDL, we learned that PCBs releases from uncontained spills and outdated products are the largest ongoing sources of PCBs in our waterways" (e.g., caulk, paint, other building materials)
  - Consider water quality impacts when reducing the exclusion concentration for PCBs
- Confederated Tribes of the Umatilla Indian Reservations (CTUIR)
  - "CTUIR DNR supports the elimination of PCBs from all dyes, pigments and inks"
  - Overseas manufacturers send products to U.S. and U.S. companies must clean up contamination to meet water quality standards

Excluded Manufacturing Process/Products: Comments

- Inland Paper/Spokane Riverkeeper/The Lands Council
  - Eliminate all federal exclusions or exceptions for inadvertently formed PCBs as a byproduct or impurity in chemical manufacturing processes
  - Monochloro-biphenyls and Dichloro-biphenyls should be excluded from total PCB regulation due to lower potential for bioaccumulation and human health toxicity
- Northwest Pulp and Paper Association (NWPPA)
  - NWPPA supports lowering the allowable concentration of PCBs in dyes, inks and pigments products as much as possible, using a phased approach, as the best mechanism for reducing PCB contamination in recycled furnish
  - Such action must be coordinated and connected federal and state actions involved in developing water quality criteria and implementation
- American Forest and Paper Association (AF&PA)
  - Carbonless copy paper manufactured in the U.S. no longer contains PCBs; AF&PA encourages EPA to discontinue use authorization for PCBs in manufactured/imported carbonless copy paper
  - PCBs in azo and phthalocyanine pigments should be banned from U.S. commerce, including imported products and packaging

Excluded Manufacturing Process/Products: Comments

- Color Pigment Manufacturers Association (CPMA)
  - 1 ppm threshold would eliminate three important pigment groups from commerce, affecting color printing as well as colors in paint and plastics
  - Technology does not now exist to eliminate PCBs in all organic pigments to a level below 1 ppm
  - Would put U.S. pigment and product manufacturers at additional competitive disadvantage versus pigment and product importers
- Representative Mike Simpson (Idaho) letter to EPA (outside ANPRM process)
  - "EPA regulations inequitably [sic] allow overseas manufacturers to export PCB containing products into the U.S. with concentrations up to 50 ppm, while then subjecting our own businesses and communities to surface water quality standards that are nearly 8 million times more stringent"
  - "Manufacturing alternatives for similar dyes and pigments that do not contain PCBs are available"

Next Steps in Use Reassessment Process

- The target for publishing EPA's Proposed Rule (NPRM) in the Federal Register for public comment is August 2014
- Under TSCA, regulatory changes require notice-and-comment rulemaking
- EPA must consider economic impacts under TSCA

For More Information

Peter Gimlin,
Environmental Protection Specialist, National Program Chemicals Division/OPPT
U.S. Environmental Protection Agency, tel. 202-566-0515,
email: *gimlin.peter@epa.gov*

U.S. EPA's PCB webpage: www.epa.gov/pcbs

Office of Pollution Prevention and Toxics (OPPT) Public Docket
oppt.ncic@epa.gov (202) 566-0280 (202) 566-9744

ANPR docket available at: www.regulations.gov
Docket # EPA-HQ-OPPT-2009-0757